

NOAA
FISHERIES

Southeast
Fisheries
Science Center

SEFSC Marine Mammal Program Overview

SEFSC Protected Species Program Review

25-27 August 2015
Miami, Florida



Stenella attenuata, GOMx: SEFSC MMPA Permit



USGS

SEFSC Marine Mammal Program

Geographic Areas of Responsibility

U.S. Atlantic (FL to NC)

Work with NEFSC on:

- coastal bottlenose dolphins to NY
- pilot whales to NY

U.S. Gulf of Mexico

U.S. Caribbean (Puerto Rico & USVI)

Includes part of three “Large Marine Ecosystems” with diverse marine mammal habitats:

- bays, sounds, & estuaries
- coastal waters (0–20 m)
- continental shelf waters (20–200 m)
- oceanic waters (> 200 m)

26 cetacean species

- 90 SEFSC stocks – currently



Southeast Fisheries Science Center Laboratory Locations



★ **Marine Mammal Program staff:**
Beaufort, Miami, Pascagoula & Lafayette

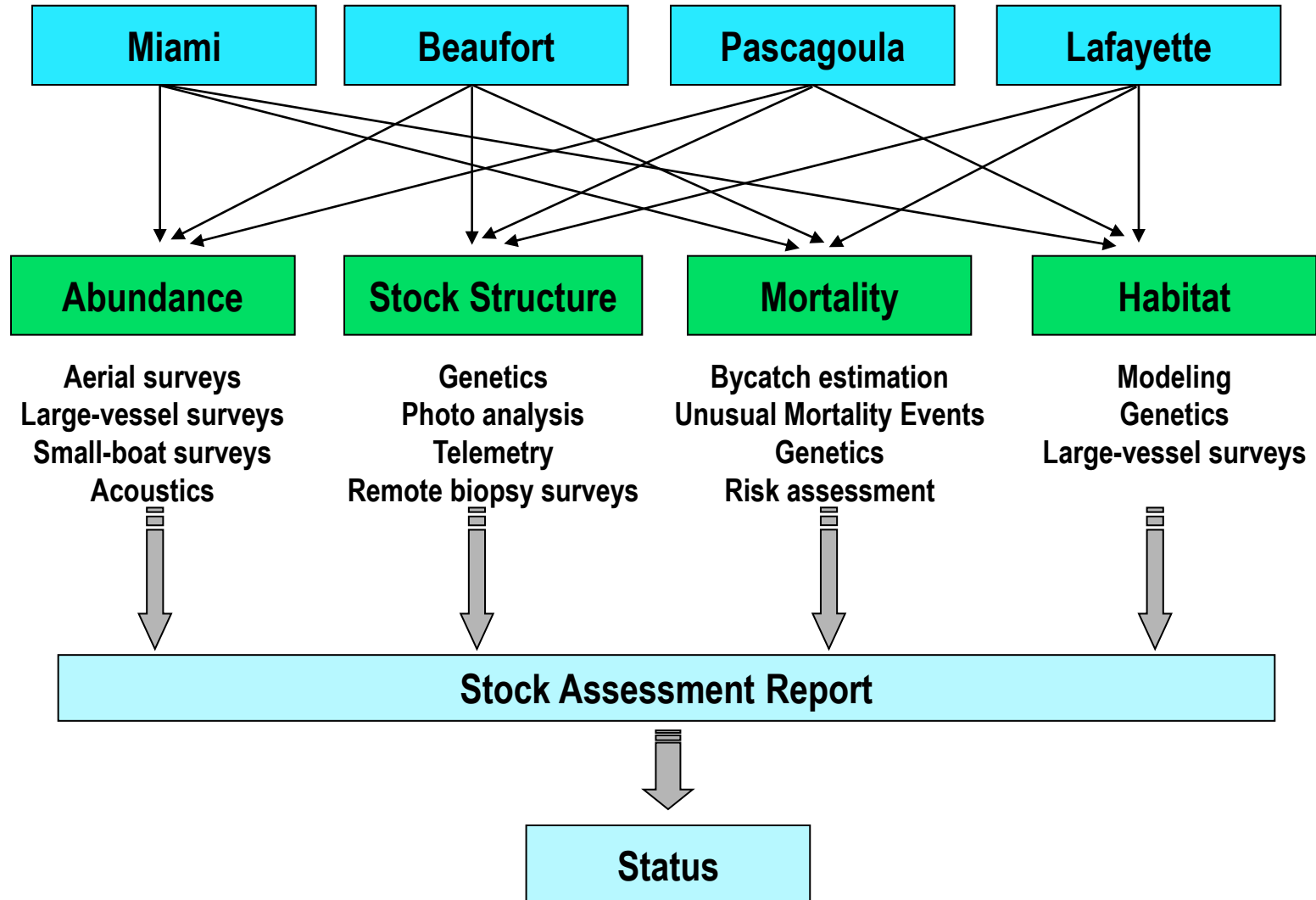
Marine Mammal Program Staff

- 13 FTEs (one is $\frac{1}{4}$ time)
- 11 Contractors (one is $\frac{1}{2}$ time)
 - 7 contractors long-term (> 5 yrs)
 - 3 contractors DWH-related
- Hire additional contractors for specific 1-2 month field projects
- Currently 1 PhD student ('student-funded'); periodic PhD & MS students (mostly student-funded)



Melon-headed whales, GOMx: SEFSC MMPA Permit

Southeast Fisheries Science Center Marine Mammal Program Structure



SEFSC Marine Mammal Program FTEs

- Program leaders all serve management & multiple scientific roles
- Principal Investigators serve multiple scientific roles

Person	Program Management	Abundance Estimation	Bycatch Estimation	Stock Structure Analysis	Conservation Science	AMAPPS	Take Reduction Team Support	Right Whale Conservation Science	Passive Acoustics	Strandings	Unusual Mortality Events	Stock Assessment Report Preparation	DWH Injury Assessment	DWH Restoration Planning	Field Sampling
Program Manager	Primary activity	Secondary activity			Tertiary activity							Secondary activity	Primary activity	Secondary activity	Tertiary activity
Program Lead	Primary activity			Primary activity	Tertiary activity		Secondary activity				Tertiary activity	Primary activity	Primary activity	Secondary activity	
Program Lead	Primary activity	Primary activity	Secondary activity		Secondary activity	Primary activity	Secondary activity	Primary activity	Tertiary activity			Tertiary activity	Primary activity	Tertiary activity	
Program Lead	Primary activity				Tertiary activity								Secondary activity		
Principal Investigator					Tertiary activity					Primary activity	Primary activity		Primary activity	Tertiary activity	
Principal Investigator			Primary activity		Tertiary activity	Tertiary activity	Tertiary activity	Primary activity	Primary activity					Primary activity	Tertiary activity
Principal Investigator										Primary activity	Secondary activity		Tertiary activity	Tertiary activity	
Project Lead					Tertiary activity			Secondary activity	Tertiary activity						Primary activity
Project Lead	Tertiary activity			Primary activity	Tertiary activity		Secondary activity				Secondary activity		Secondary activity		
Project Lead										Primary activity	Primary activity		Tertiary activity	Tertiary activity	
Field Support													Primary activity		Primary activity
Field Support						Primary activity							Secondary activity		Primary activity
Field Support															Primary activity



Primary activity



Secondary activity



Tertiary activity



SEFSC Marine Mammal Program Contractors

- most have more than one role

Person	Program Management	Abundance Estimation	Bycatch Estimation	Stock Structure Analysis	Conservation Science	AMAPPS	Take Reduction Team Support	Right Whale Conservation Science	Passive Acoustics	Strandings	Unusual Mortality Events	Stock Assessment Report Preparation	DWH Injury Assessment	DWH Restoration Planning	Field Sampling
SARs/Permits (50%)															
Genetics Tech															
Project Support															
Project Support															
Project Support															
Stranding/UME Support															
Stranding/UME Support															
Stranding/UME Support															
Stranding/UME Support															
Field Support															
Field Support															
Field Support															
<div> <div></div> <div>Primary activity</div> <div></div> <div>Secondary activity</div> <div></div> <div>Tertiary activity</div> </div>															



Resources

NOAA Twin Otters



abundance surveys

NOAA Ships

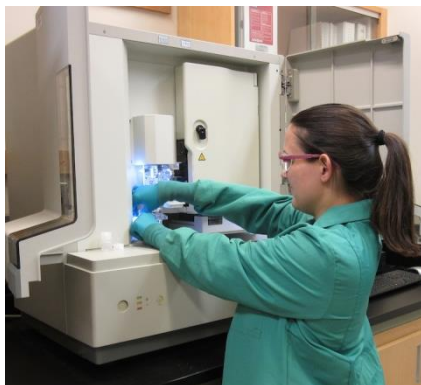


50-60 sea days/yr (i.e., 1 survey)
abundance, biopsy, acoustics &
ecosystem

Small Boats



coastal/inshore studies; biopsy
and photo-ID



**Marine Mammal
Molecular Genetics Lab
Lafayette**



**Marine Mammal
Life History Lab
Beaufort**



**Necropsy Facilities
Beaufort, Miami, Pascagoula**



NOAA FISHERIES

SEFSC Marine Mammal Stocks

Northern Gulf of Mexico (57 stocks)

- Bays, Sounds & Estuaries
 - 32 bottlenose dolphin stocks
- Coastal (< 20 m)
 - 3 bottlenose dolphin stocks
- Continental Shelf (20 – 200 m)
 - 2 species & stocks (bottlenose & Atlantic spotted dolphins)
- Oceanic (>200 m)
 - 20 species & stocks (tropical cetacean community)

Western North Atlantic (27 SEFSC stocks)

- Bays, Sounds & Estuaries
 - 10 bottlenose dolphin stocks
- Coastal
 - 5 bottlenose dolphin stocks (All MMPA depleted)
- Offshore (continental shelf & oceanic, south of Maryland)
 - 22 species (mostly tropical cetacean community, some shared with NEFSC)

U.S. Caribbean (6 stocks)

- 20 species, at least 20 stocks – eventually

SEFSC Priority Marine Mammal Stocks

- **North Atlantic right whale**

ESA-listed; calving area off FL & GA, ship-strike mitigation, timing of migrations

- **Sperm whale**

ESA-listed; stock structure & ranging patterns (GOMx, Atl & PRVI stocks)

- **Bryde's Whale**

Petition for ESA-listing of GOMx stock; habitat use & ranging

- **Short- & long-finned pilot whales**

Atlantic stocks; pelagic long-line fishery takes, species ID, stock structure & seasonal habitat use

- **Common bottlenose dolphin**

Small bay, sound & estuary stocks & coastal stocks subject to multiple threats

SEFSC Marine Mammal Program Goals & Activities

2008 SEFSC Marine Mammal Program Strategic Plan

Mission: *Provide the best possible science to support effective management & conservation of marine mammal populations & restoration of healthy marine ecosystems in the southeastern United States & Caribbean.*



- Assess the status of marine mammal stocks
- Evaluate marine mammal habitat & ecosystem interactions
- Evaluate causes & impacts of marine mammal mortalities
- Support conservation & recovery planning
- Disseminate scientific findings to promote effective management & increase public awareness
- Effectively archive, manage & retrieve data

Drivers for SEFSC Marine Mammal Research

MMPA-mandated Stock Assessment Reports

- 1) STOCK DEFINITION & RANGE
- 2) POPULATION SIZE (Minimum Population Estimate, Population Trend)
- 3) MAXIMUM NET PRODUCTIVITY RATE
- 4) POTENTIAL BIOLOGICAL REMOVAL (PBR: $N_{\min} \times \frac{1}{2} R_{\max} \times \text{Rec. Factor}$)
- 5) ANNUAL HUMAN-CAUSED MORTALITY & SERIOUS INJURY (Fishery Information, Other Mortality)
- 6) STATUS OF STOCK (Endangered? Depleted? Strategic? Stable? Declining?)

Endangered Species Act

- 1) North Atlantic right whale
- 2) Sperm whale
- 3) GOMx Bryde's whale (petition)

Take Reduction Teams (TRT)

- 1) Large whale TRT (Atlantic)
- 2) Harbor porpoise TRT (Atlantic)
- 3) Pelagic longline TRT (Atlantic)
- 4) Bottlenose dolphin TRT (Atlantic)

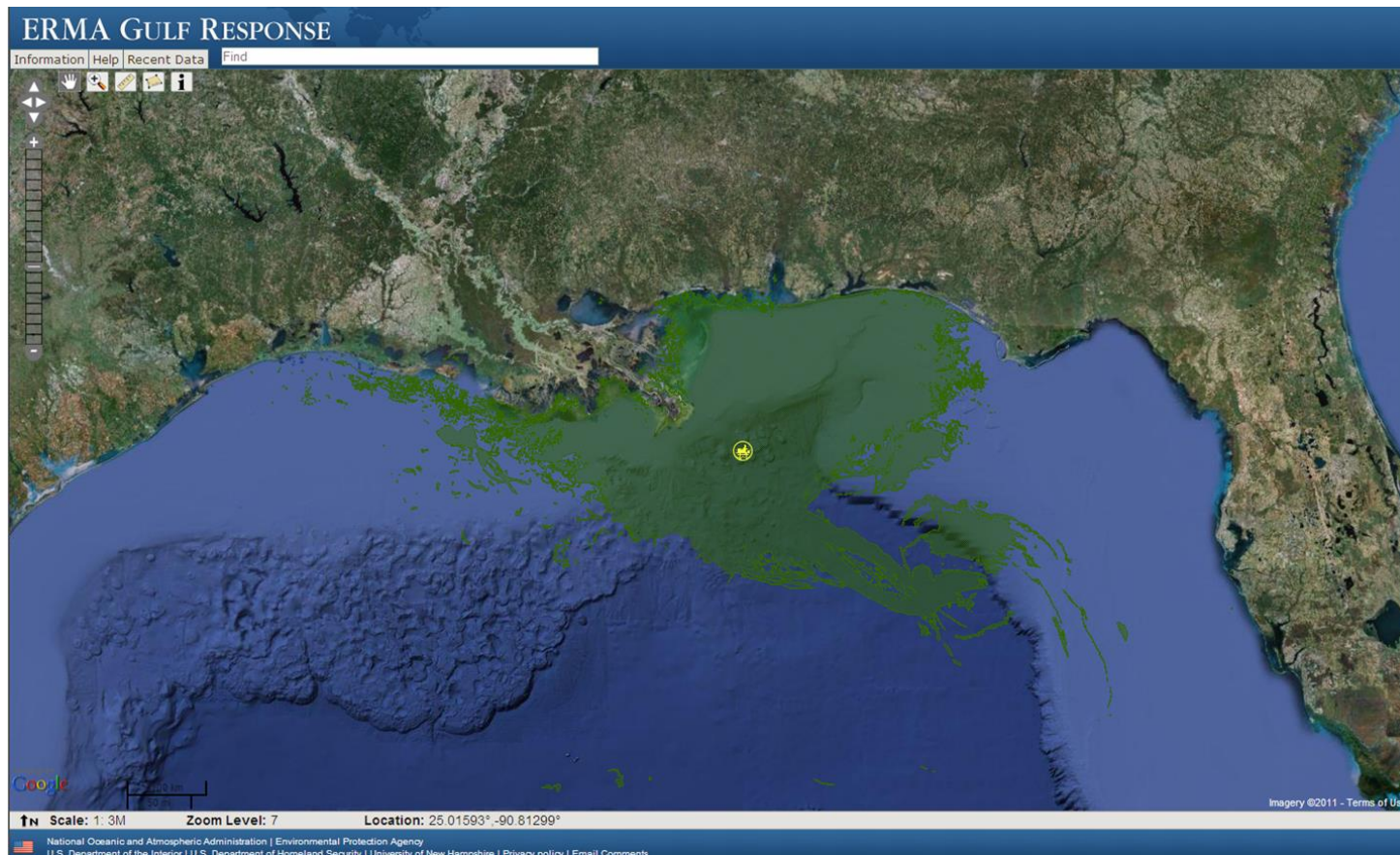


Federal Partners (ESA Section 7)

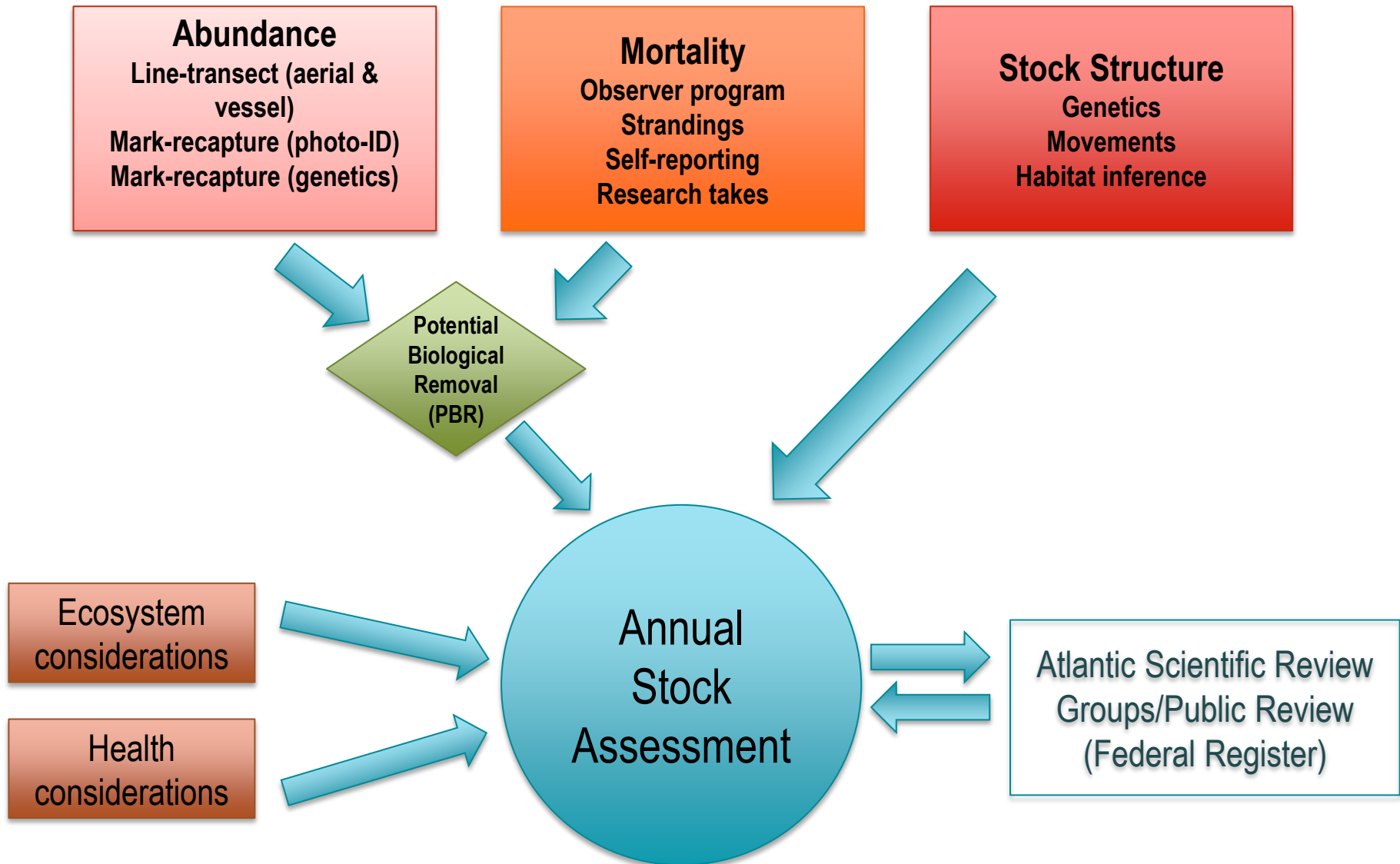
- BOEM
- US Navy
- USACOE

Deepwater Horizon Oil Spill

- 20 April 2010 – Present
- Dominant SEFSC Marine Mammal Program activity
- Response, NRDA, Restoration planning



Marine Mammal Stock Assessments

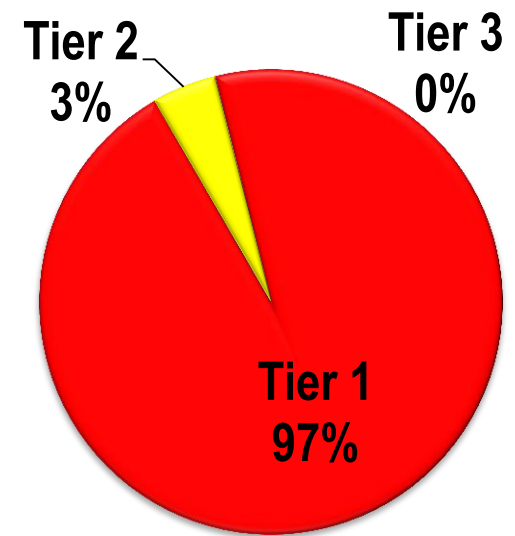


Marine Mammal Stock Assessments

Overall adequacy of Stock Assessments

(GPRA measures – Government Performance & Results Act)

- **Tier 1 = Inadequate**
- **Tier 2 = Adequate**
 - Up-to-date abundance estimates
 - Bycatch estimates
 - Comprehensive analysis of stock structure
- **Tier 3 = Ecosystem-level assessment**



90 SEFSC stocks

Tier 1 = 87

Tier 2 = 3

SEFSC Marine Mammal Program Priorities

- **Bay, Sound, & Estuary Bottlenose Dolphin Stocks**

Improve assessments through improved delineation of stocks & by conducting regular Capture-Mark-Recapture surveys for abundance estimates.

- **Marine Mammal Density Mapping Products**

Implement data collection, data integration, & analytical approaches for disseminating products operational for use by NOAA & agency partners.

- **Stranding Response & Health Assessment**

Enhance role in identifying threats, quantifying disease prevalence, & understanding stock dynamics.

- **Stock Structure**

Improve stock assessments by refining knowledge of stock structure, developing molecular methods to assign individuals to stock, generating baseline data on population health.

- **Quantitative Risk Assessments**

Develop assessments that evaluate stock status & trends, identify major risks, & quantify the impacts of human activities & environmental variation on marine mammal populations.



Marine Mammal Program Funding

FY2014

Program	Permanent Funding	Temporary Internal Funding	External Funding	FTE Labor	Contract Labor	Operating Funds
Right Whales	\$556,175	\$0	\$0	\$319,210	\$0	\$236,965
Large Whales	\$212,709	\$0	\$0	\$202,878		\$9,831
Stock Assessments	\$720,449	\$90,000	\$0	\$409,682	\$305,500	\$33,795
Marine Mammal Protection	\$667,784	\$0	\$0	\$665,613	\$49,000	\$0
AMAPPS (BOEM/USN)	\$0	\$0	\$345,000			
Gulf of Mexico (BOEM)	\$0	\$0	\$881,000			
DWH NRDA	\$0	\$0	\$841,121			
Total	\$2,157,117	\$90,000	\$2,067,121	\$1,597,383	\$354,500	\$280,591

SEFSC Marine Mammal Program

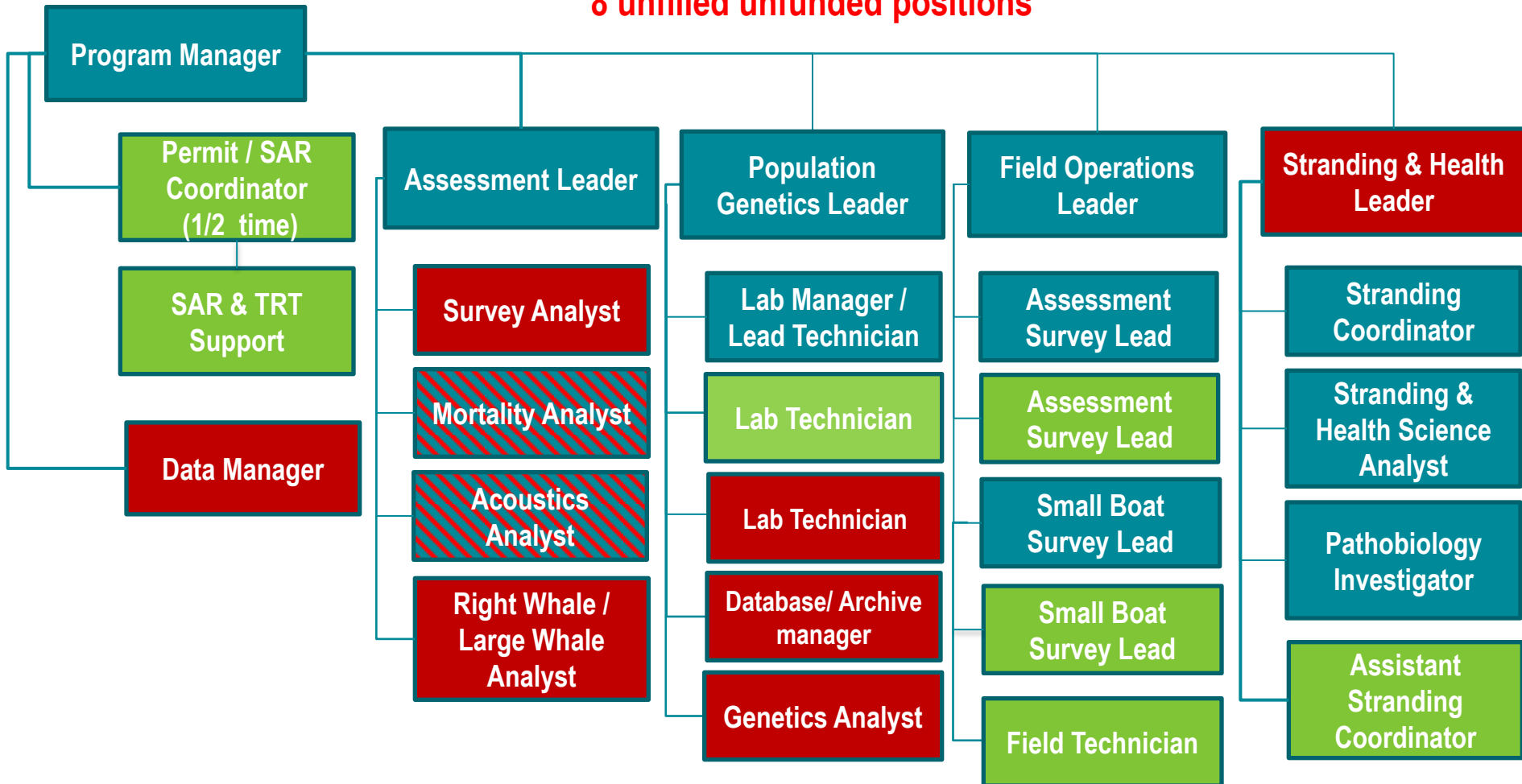
Program Requirements & Current Capability

	Required	Reality
Right whale work	Passive acoustic monitoring	Passive acoustic monitoring
Large vessel surveys	2 seasonal/yr	Temp \$ - e.g., AMAPPS
Coastal aerial surveys	2 seasonal/yr	Temp \$ - e.g., AMAPPS
Small vessel surveys	6 BSE/yr + stock delineation	Local fieldwork without Temp \$
Analytical Work	Additional FTE analysts	Data analyses to meet minimum requirements
Stranding Program	Additional FTE Coordination, data collection & analysis	Minimal coordination & data management



Mammal Program Staff Required to Meet Strategic Goals

26 positions required
18 currently filled: 11 FTEs; 7 contractors
8 unfilled unfunded positions



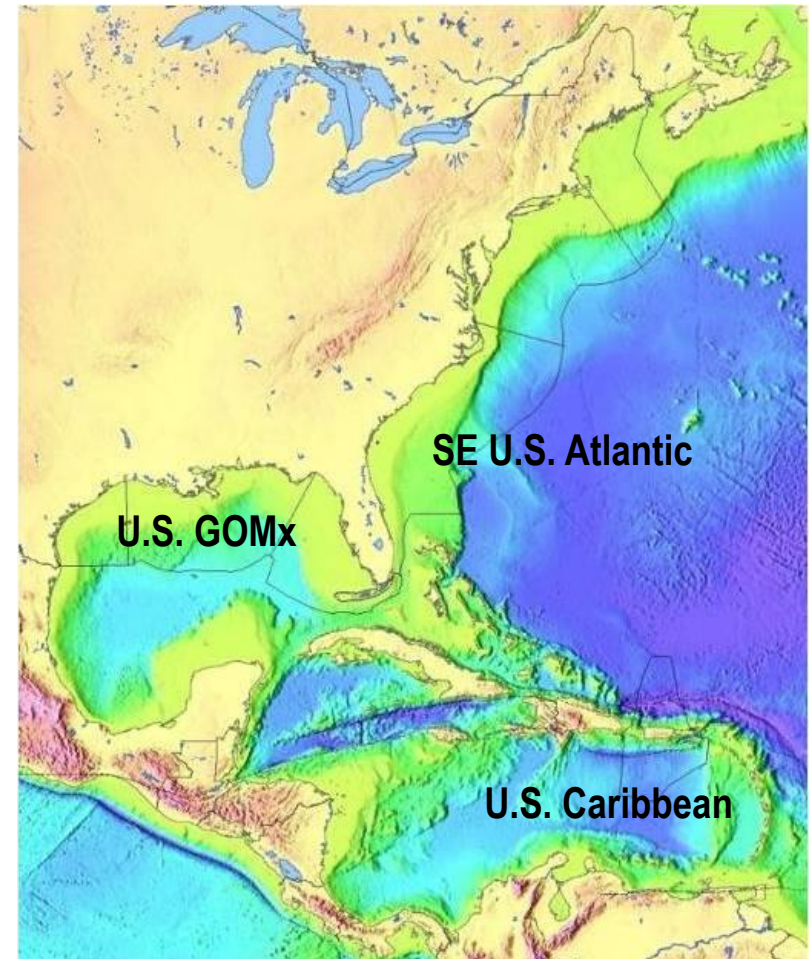
Specific Problem Areas

U.S. Caribbean – finding resources for this region given competing priorities

Transboundary Stocks – the ranges of oceanic cetaceans almost certainly include international waters and/or waters of other countries

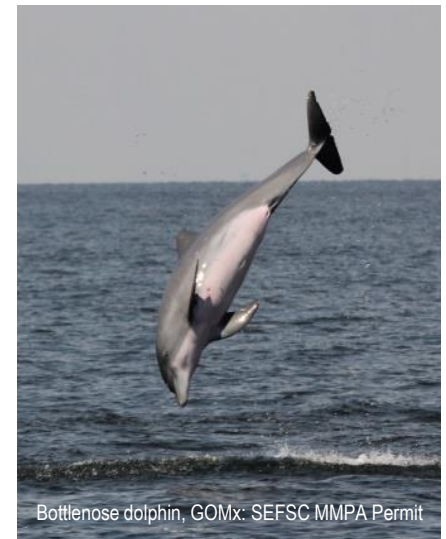
- **Southern Gulf of Mexico** – interpreting N GOMx results without the context of the S GOMx

Trends in Stock Abundance – estimating trends given the current survey schedule



Challenges

- Limited permanent internal funds for research; temporary & reimbursable funds very focused use
- High reliance on, & key needs filled by, long-term contract labor



Strengths

- Skilled & experienced FTE & Contractor staff
- Marine Mammal Molecular Genetics Lab
- Substantial external funds via AMAPPS (BOEM & USN)



Clymene dolphins, GOMx: SEFSC MMPA Permit

Accomplishments

- DWH response & damage assessment
- Atlantic pilot whale assessments
- GOMx Bryde's whale genetics research
- Right whale ship strike mitigation
- Contributions to OBIS-SEAMAP & habitat-based abundance estimates



Program Review Marine Mammal Topics

Data Collection

- Abundance estimation & distribution
- Stock Structure
- Fisheries interactions from bycatch & strandings

Stock Assessment

- Stocks with insufficient data
- Stocks with considerable data
- Multiple small stocks with insufficient data

Marine Mammal Stranding Response

Deepwater Horizon

Research for Conservation